

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant:	Romero	Patent Application
Application No.:	10/616,883	Group Art Unit: 2195
Filed:	July 10, 2003	Examiner: To, Jennifer N.

For: SYSTEMS AND METHODS FOR MONITORING RESOURCE UTILIZATION
AND APPLICATION PERFORMANCE

AMENDED APPEAL BRIEF

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I. Real Party in Interest

The assignee of the present application is Hewlett-Packard Development Company, L.P.

II. Related Appeals and Interferences

There are no related appeals or interferences known to the Appellant.

III. Status of Claims

Claims 1-25 and 27-33 remain pending. Claims 1-25 and 27-33 are rejected.
This Appeal involves Claims 1-25 and 27-33. Claim 26 has been cancelled.

IV. Status of Amendments

All proposed amendments have been entered. An amendment subsequent to the Final Action has not been filed.

V. Summary of Claimed Subject Matter

Independent Claim 1 of the present application pertains to a system for monitoring resource utilization and application performance; independent Claim 28 of the present application pertains to a method for monitoring resource utilization and application performance.

Claim 1 recites,

A system comprising:

- a processor for executing instructions of a monitoring agent to monitor application data for compliance with policy data;

- storage that is accessed due to the instructions executing on the processor, wherein the storage stores:

- resource data, the resource data including information on a plurality of resources, the resources including a plurality of computers;
 - the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information; and
 - the policy data including one or more application performance policies and one or more resource utilization policies.

One of the features recited by Claim 1 is “a plurality of resources.” At lines 4-10 of paragraph 0016 on page 4, the instant application states that examples of resource may include, “a plurality of computers, such as servers, or blades in a rack and blade architecture.” Other examples of resources described in paragraph 0016 are partitions within a server, load balancers, firewalls and network switches.

One of the features recited by Claim 1 is “application data.” At lines 2-3 of paragraph 0017 on page 5, the instant application states “An application may be a single application, a replicated application or an aggregate application.” At lines 1-3 of

paragraph 0017 on page 5, referring to Figure 1, the instant application states, “Controller 100 also includes application data 110.”

The instant application states at lines 1-3 of paragraph 0017 on page 5 “Application data includes one or more application profiles 112, 114, 116.” Other features recited by Claim 1 include application profile, performance profile, and resource profile. In paragraph 0018 on page 5, referring to Figure 1, the instant application states,

In one embodiment, application profiles 112-116 may include one or more of a resource profile, and a performance profile. A resource profile may include resource demand information on the amount of resources an application requires and resource utilization information. The resource utilization information may include resource allocation information on the amount of resources an application is using or has used over a period of time. By way of example, information on CPU, memory, I/O, network percentages or absolute consumption for an application may be tracked over a period of time and stored in a resource profile. A performance profile may include information on application performance at the application or user level, such as response time.

At lines 1-2 of paragraph 0020 on page 6, referring to Figure 1, the instant application states, “Controller 110 may receive performance information for an application profile 112-116 from a plurality of client agents.”

Yet other features recited by Claim 1 are policy data, performance policy, and resource utilization policy. Referring to Figure 1, the instant application states in paragraph 0021 on pages 6 and 7,

Policy data 108 is also accessible to controller 100. Policy data 108 may include one or more performance policies associated with an application or application component. By way of example, an application policy may be that an average response time per transition for the application component is 2 seconds 95% of the time. Policy data may also include one or more resource utilization policies associated with a resource, an application, or a container. For example, a utilization policy may be that the maximum utilization allowed for a container or a resource is 80%. Other performance and resource utilization policies are also

contemplated. Additionally, in some embodiments, one or more of the policies may be assigned a relative priority.

Still another feature recited by Claim 1 is a monitoring agent. Referring to Figure 1, at lines 1-2 of paragraph 0022 on page 7 the instant application states, “Controller 100 additionally includes monitoring agents 102 to monitor the application data for compliance with the policy data...”

Claim 28 recites,

A method comprising:

monitoring application data for compliance with one or more performance policies, the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information associated with an application, each application executing in a container associated with a domain, each domain including one or more resources, the resources including a plurality of computers;

in response to a policy violation, automatically enforcing the policy by expanding a first one of the containers.

As already stated herein, the instant application discusses resources at lines 4-10 of paragraph 0016 on page 4, among other places.

As already stated herein, the instant application discusses application data at lines 1-3 of paragraph 0017 on page 5 and paragraph 0018 on pages 5 and 6, among other places.

As already stated herein, the instant application discusses performance policies at lines 1-2 of paragraph 0020 on page 6 and paragraph 0021 on pages 6 and 7, among other places.

As already stated, application profile, performance profile, and resource profile are discussed in paragraph 0018 on pages 5 and 6, which refers to Figure 1.

The instant application describes “resource utilization information” at lines 4-10 of paragraph 0018 on page 5 and 6, among other places.

The instant application describes “container” at paragraph 0019 on page 6, among other places.

The instant application describes “domain” at lines 7-8 of paragraph 0004 on page 2, among other places. Referring to lines 2-4 of paragraph 0030 on pages 10 and 11 of the instant application, Figure 7 illustrates a domain that consists of a cluster. The cluster includes two containers 710, 720, each of which is associated with an application.

The instant application describes a flowchart depicted in Figure 3 of one method that may be used to enforce policies at lines 2-12 of paragraph 0026 on page 9. For example, “monitoring application data,” as recited by Claim 28 is described in the context of step 305 of Figure 3 at lines 3-5 of paragraph 0026 of the instant application. As already stated herein, the instant application also discusses “monitoring application data” at lines 1-2 of paragraph 0022 on page 7, which refer to Figure 1.

“In response to a policy violation” as recited by Claim 28 is described in the context of step 210 of Figure 3 at lines 5-6 of paragraph 0026 on page 9 of the instant application.

“Automatically enforcing the policy...” as recited by Claim 28 is described in the context of step 315 of Figure 3 at lines 7-9 of paragraph 0026 on page 9 of the instant application. The instant application, referring to Figures 4A-4d and 5, provides more examples of enforcing a policy, for example, in paragraphs 0029-0031 on pages 10-11.

VI. Grounds of Rejection to Be Reviewed on Appeal

1. Claims 1-5, 10-25, and 27 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2004/0111725 by Srinivasan et al., hereinafter referred to as “Srinivasan.”
2. Claims 6-9 and 28-33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Srinivasan in view of U.S. Patent No. 6,823,382 by Stone et al., hereinafter referred to as “Stone.”

VII. Argument

1. Whether Claims 1-5, 10-25 and 27 are Anticipated Under 35 U.S.C. §102(e) by Srinivasan.

Claims 1-5, 10-25 and 27 are rejected under 35 U.S.C. §102(e) as being anticipated by Srinivasan. Appellant has reviewed the cited art and respectfully submits that the embodiments as recited in Claims 1-5, 10-25 and 27 are not anticipated by Srinivasan in view of the following rationale.

Appellant first points out that the patent publication no. 2004/0111725 by Srinivasan (also referred to herein as “Srinivasan” or “Srinivasan’s patent publication”) relied upon by the Office Action was filed November 7th, 2003, which is after the filing date July 10, 2003 of the instant application serial no. 10/616,883. The Srinivasan patent publication claims priority to a provisional application serial no. 60/426,962 filed November 8, 2002 (also referred to herein as “Srinivasan’s provisional”). To expedite prosecution of the instant application, Appellant has reviewed both Srinivasan’s patent publication and Srinivasan’s provisional. Appellant notes that during prosecution Appellant requested that future Office Actions cite portions of Srinivasan’s provisional instead of citing portions of Srinivasan’s patent publication since Srinivasan’s patent publication was filed after Appellant’s instant application.

MPEP §2131 provides:

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). ... “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim.

A. Cited Art is not “Arranged as in the Claim”

Appellant respectfully submits that Srinivisan does not anticipate the claimed embodiments because the citations relied on by the Rejection of 9/24/2007 (hereinafter “Rejection”) to support anticipation of Claim 1 are not “arranged as in the claim.” For example, Appellant does not understand Srinivisan to teach or suggest, “...each application profile having a performance profile and a resource profile...” (emphasis added).

The Response to Arguments section asserts that Srinivisan teaches “the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information” at paragraph 0039. However, Appellant does not understand paragraph 0039 to teach or suggest, “...each application profile having a performance profile and a resource profile...” (emphasis added) as recited by Claim 1 for at least the reason that paragraph 0039 of Srinivisan does not teach the elements arranged as required by Claim 1.

B. Claimed Features are not Met by the Cited Art

As already stated, Srinivisan’s patent publication cited by the Office Action has a filing date after the filing date of Appellant’s instant application. Appellant does not understand Srinivisan’s provisional application to teach or suggest “the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization

information,” as recited by Claim 1. For example, the second paragraph on page 39, Srinivasan’s provisional application states, “The Application Scheduler needs the following three things to manage applications: Scaling parameters... Run time data for Scheduling parameters...Application Scalar...” Note that the three things that Srinivasan’s application scheduler needs do not teach or suggest “the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information,” (emphasis added) as recited by Claim 1.

Various dependent claims also recite features which further make them patentable.

Attention is directed to Claim 3 which recites (emphasis added):

The system of claim 1, wherein the monitoring agent is further to perform arbitration within a domain grouping one or more of the computers in response to a violation of one of the application and resource utilization policies.

Per Appellant’s understanding, Srinivasan teaches server classes which as stated at lines 2-3 of paragraph 0037 “...are a collection of computer servers that have the same characteristics or capabilities.” Further at lines 6-7 of paragraph 0037 Srinivasan states that “... an application instance is started or restored only within a certain server class.” However, Appellant does not understand Srinivasan’s server class to teach or suggest a domain as recited by Claim 3 because Appellant does not understand Srinivasan to teach or suggest, monitoring his server classes nor to “perform arbitration within” his server classes.

For similar reasons, Appellant does not understand Srinivasan to teach or suggest “...the monitoring agent is further to expand a domain...” as recited by Claim 4.

Attention is also directed to Claim 24 which recites:

The system of claim 1, wherein one or more of the application profiles further includes instructions for installing the associated application.

Per Appellant’s understanding, Srinivasan teaches starting or activating application instances. One embodiment of starting or activating an application instance is described at paragraph 0043 lines 6-8 which states “Requests to activate an application may be done by any person such as users or administrators.” Another embodiment of starting or activating an application instance is described at paragraph 0049 lines 6-8 which states, “...the application scheduler 150 transmits an instruction to the resource controller 120 to start an application instance in step 604.” However, Appellant does not understand either embodiment of Srinivasan to teach or suggest “...one or more of the application profiles further includes instructions for installing...” (emphasis added) as recited by Claim 24.

For similar reasons, Appellant does not understand Srinivasan to teach or suggest “...wherein the instructions further include instructions for configuring the associated application” as recited by Claim 25.

C. Summary

Therefore, Appellant submits that independent Claim 1 is not anticipated by Srinivasan as the Rejection fails to establish a *prima facie* case for anticipation of Claim 1. As such, Appellant submits that independent Claim 1 is in condition for allowance.

Dependant Claims 2-5, 10-25 and 27 depend from Claim 1 which is allowable over Srinivasan. Hence, it is respectfully submitted that dependent Claims 2-5, 10-25 and 27 are patentable over Srinivasan for the reasons discussed above, and are in condition for allowance by virtue of their dependence upon an allowable base claim.

2. Whether Claims 6-9 and 28-33 are Obvious Under 35 U.S.C. §103(a) over Srinivasan in view of Stone.

Claims 6-9 and 28-33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Srinivasan in view of Stone. Appellant has reviewed the cited art and respectfully submits that the embodiments as recited in Claims 6-9 and 28-33 are not taught or suggested by Srinivasan and Stone, alone or in combination, in view of the following rationale.

“As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries” including “[a]scertaining the differences between the claimed invention and the prior art” (MPEP 2141(II)). “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious” (emphasis in original; MPEP 2141.02(I)). Applicants note that “[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art” (emphasis added; MPEP 2141(III)).

The Response to Arguments section asserts that Srinivasan teaches “the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information” at paragraph 0039. However, as already stated herein, Appellant does not understand paragraph 0039 to teach or suggest, “...each application profile having a performance profile and a resource profile...” (emphasis added) as recited by Claim 1. As already stated the filing date of Srinivasan comes after the filing date of the instant application. Further, as already stated, Appellant does not understand the Srinivasan provisional to teach all of the elements recited by Claim 1.

For at least these reasons, independent Claim 1 should be patentable over Srinivasan. For similar reasons independent Claim 28 should be patentable over Srinivasan.

Stone does not remedy the deficiency in Srinivasan in that neither Stone nor Srinivasan teach or suggest “the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information,” as recited by Claim 1. In fact, the Office Action does not assert that Stone teaches “the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information,” as recited by Claim 1. Independent Claim 28 should be patentable for similar reasons that Claim 1 should be patentable. Claims 6-9 depend on Claim 1. Claims 29-33 depend on

Claim 28. These dependent claims include all of the limitations of their respective independent claims.

Therefore, in summary, Appellant respectfully submits that the Office Action's rejections of the Claims are improper as the rejection of Claims 6-9 and 28-33 does not satisfy the requirements of a prima facie case of obviousness as claimed features are not met by the cited reference. Accordingly, Appellant respectfully submits that the rejection of Claims 6-9 and 28-33 under 35 U.S.C. §103(a) under Srinivasan in view of Stone is improper and should be reversed.

Conclusion

Appellant believes that pending Claims 1-5, 10-25 and 27 are patentable over Srinivasan. As such, Appellant submits that Claims 1-5, 10-25 and 27 are patentable over the prior art. Appellant believes that pending Claims 6-9 and 28-33 are patentable over Srinivasan in view of Stone. As such, Appellant submits that Claims 6-9 and 28-33 are patentable over the prior art.

Appellant respectfully requests that the rejection of 1-25 and 27-33 be reversed. The Appellant wishes to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellant's undersigned representative if it is felt that a telephone conference could expedite prosecution.

Respectfully submitted,
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Dated: 4/11/2008

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VIII. Appendix - Clean Copy of Claims on Appeal

1. A system comprising:

a processor for executing instructions of a monitoring agent to monitor application data for compliance with policy data;

storage that is accessed due to the instructions executing on the processor, wherein the storage stores:

resource data, the resource data including information on a plurality of resources, the resources including a plurality of computers;

the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information; and

the policy data including one or more application performance policies and one or more resource utilization policies.

2. The system of claim 1, wherein at least one of the applications comprises an aggregate application executing on at least two of the computers.

3. The system of claim 1, wherein the monitoring agent is further to perform arbitration within a domain grouping one or more of the computers in response to a violation of one of the application and resource utilization policies.

4. The system of claim 1, wherein the monitoring agent is further to expand a domain grouping one or more of the computers in response to a policy violation.
5. The system of claim 1, wherein the monitoring agent is further to contract a domain grouping one or more of the computers.
6. The system of claim 1, further comprising domain definition data, the domain definition data including information on a plurality of domains, each domain comprising a grouping of one or more computers, one or more of the domains being a cluster.
7. The system of claim 6, wherein the cluster comprises a first container executing a set of replicated instances of an application on a first set of nodes and a second container having a second set of nodes.
8. The system of claim 7, wherein the monitoring agent is further to transfer a node from the second container to the first container in response to a violation of one of the policies.
9. The system of claim 1, further comprising domain definition data having information on a plurality of domains, each domain comprising a grouping of one or more computers, the domain definition data further including information on the resource utilization of a domain.
10. The system of claim 1, wherein the resource profile further includes resource demand information on the amount of resources an application requires.

11. The system of claim 1, wherein the resource utilization information includes resource consumption information on the amount of resources an application is currently assigned.

12. The system of claim 1, wherein the resource utilization information includes at least one of resource consumption information on the amount of resources an application is currently using, and resource consumption information on the amount of resources an application has used over a period of time.

13. The system of claim 1, wherein one of the computers is associated with a container to execute one of the applications.

14. The system of claim 1, wherein one of the computers is associated with a plurality of containers, each container to execute one of the applications.

15. The system of claim 14, wherein the policy data further includes one or more container utilization policies, each utilization policy associated with one of the containers.

16. The system of claim 14, wherein at least one of the containers is a partition.

17. The system of claim 16, wherein the monitoring agent is further to resize the partition in response to a violation of one of the policies.

18. The system of claim 16, wherein the partition is a hardware partition.
19. The system of claim 16, wherein the partition is a software-based partition.
20. The system of claim 14, wherein at least one of the containers is a processor set.
21. The system of claim 14, wherein at least one of the containers is a sub-CPU resource partition.
22. The system of claim 1, wherein the performance information includes response time.
23. The system of claim 1, wherein one or more of the application profiles includes resource allocation information for the associated application.
24. The system of claim 1, wherein one or more of the application profiles further includes instructions for installing the associated application.
25. The system of claim 22, wherein the instructions further include instructions for configuring the associated application.
27. The system of claim 1, wherein the performance policies have a relative associated priority.
28. A method comprising:

monitoring application data for compliance with one or more performance policies, the application data including one or more application profiles, each application profile having a performance profile and a resource profile, the resource profile including resource utilization information associated with an application, each application executing in a container associated with a domain, each domain including one or more resources, the resources including a plurality of computers;

in response to a policy violation, automatically enforcing the policy by expanding a first one of the containers.

29. The method of claim 28, wherein the first container comprises a partition and expanding the first container comprises resizing the partition.

30. The method of claim 28, wherein the domain associated with the first container comprises a cluster.

31. The method of claim 30, wherein expanding the first container comprises transferring a node associated with a second container, the second container being in the domain associated with the first container, to the first container.

32. The method of claim 28, further comprising in response to a second policy violation, providing a message to a user.

33. The method of claim 32, wherein the message comprises a message that a lower priority policy cannot be met.

IX. Evidence Appendix

No evidence is herein appended.

X. Related Proceedings Appendix

No related proceedings.